Maths: Estimating population and writing up methods

A group of students were given the task of calculating the population of Concepción, Chile, in 2014, based on their knowledge that the population figure in 2009, and the fact that the population grows by 5% each year. The method and calculations are shown below.

Students were then given the task of writing up the stages of their method in mini-paragraphs, and were given connectives that would be useful for them. Students were shown a model (see paragraph 1.) of how they would explain their calculation. Further scaffolds were given as appropriate (see paragraphs 2. and 3.).

The thinking behind this task was that by writing these rather repetitious paragraphs, students would consolidate their understanding of how they arrived at their final calculation by breaking it up into stages using language.

Connectives for explaining method	Yearly population (2009 population – 636, 000)	+ 5% of previous year's population (showing method)	Total
Firstly…	Population of Concepción in 2010	10% - 63 600 / 2 = 31 800	636 000 + 31 800 = **667 800**
Secondly…	Population of Concepción in 2011	10% - 66 780 / 2 = 33 390	667 800 + 33 390 = **701 190**
Thirdly…	Population of Concepción in 2012	10% - 70 119 / 2 = 35 059.5 35 060 (rounded up)	701 190 + 35 060 = **736 250**
Next…	Population of Concepción in 2013	10% - 73 625 / 2 = 36 812.5 36 813 (rounded up)	736 250 + 36 813 = **773 063**
Finally…	Population of Concepción in 2014	10% - 77 306.3 / 2 = 38 653.15 38 653 (rounded down)	773 063 + 38 653 = **811 716**

Other useful connectives for explaining methods:

To begin with…   I did this by…   To do this,…   Then,…   After I had…   Lastly,…

Explanation of method: Calculate the population of Concepción for 2014

1.

Firstly, I estimated the population of **Concepción** in 2010. **To do this,** I first looked up the population in 2009, which was 636,000. **Then,** because the population grows by 5% each year, I needed to find 5% of the 2009 population. **I did this by** dividing the 2009 population by 10 to discover 10% of the population, which is 63,600, and then divided this number by 2 to find 5% which gave me the total 31,800. **Lastly,** I added 31,800 (5% of the 2009 population) to 636,000 (the entire 2009 population) to give me an estimated population of 667,800 for 2010.

2.

Secondly, I estimated the population of Conception in _____. **To do this,** I first looked up the population in _____, which was _____. **Then,** because the population grows by __ each year, I needed to find __ of the _____ population. **I did this by** _____ the _____ population by __ to discover ___ of the population, which is _____, and then _____ this number by _ to find __ which gave me the total _____. **Lastly,** I _____ _____ (__ of the _____ population) to _____ (the entire _____ population) to give me an estimated population of _____ for _____.

3.

Thirdly…   To do this,…   Then,…   I did this by…   Lastly,…